REMARKS

Claims 1, 16, and 28 have been amended. New claim 29 has been added. Claims 1 through 29 remain in the application. A marked up copy of the amended paragraphs of the specification and amended claims is attached hereto as Appendix A.

The drawings were objected to because of alleged informalities. Applicants respectfully traverse this objection.

As to page 6, the specification has been amended to clarify that the buckle assembly 30 may extend above the seat cushion. As to pages 10 and 16, the specification has been amended to clarify that the cam 66 does not have surface 90 and that the cam 166 does not have surface 190. As to the cable guide 174 as described on page 16 of the specification, the cable guide 174 is only partially shown and is symmetrical about the cable 184. As such, the cable guide 174 guides the cable 184 and Applicants are their own lexicographer as to labeling the member 174. As to Figures 4 and 5, the cable 184 may extend out of the aperture 146 and is supported by the piston 150 depending on the length thereof. Although the cable 184 may be shortened to the cable clamp 186, it is not required. As such, it is clear that the cable 184 may extend out of the aperture 146. As to the scallops 170, they are located on the correct side. To prevent reverse travel of the cable, the torque about the stud 168 rotates the cam 166 toward the buckle assembly 30 and into the cable 184 and compresses the cable 184 between the cam 166 and the clamping surface 190 of the frame 134. As such, the scallops 170 are located on the correct side of the cam 166. Therefore, it is respectfully submitted that the drawings overcome the objections and are acceptable.

The disclosure was objected to because of an informality on page 19. Applicants respectfully traverse this objection.

The specification has been amended on page 19, lines 15 and 16, to correct the informality. It is respectfully submitted that the specification, as amended, is allowable over the objection.

Claims 1, 2, 9, 16, 19, 23, and 25 through 28 were rejected under 35 U.S.C. § 102(b) as being anticipated by Meyer et al. (U.S. Patent No. 6,068,664). Applicants respectfully traverse this rejection.

U.S. Patent No. 6,068,664 to Meyer et al. discloses a tightening device for use with safety belts with eccentric locking. A cable 10 supports a belt buckle 11 and its other end is connected to a drive device 12, which is comprised of a cylinder 13, a piston 14 guided therein, and a propelling charge 15. The cable 10 is fastened to the piston 14. Between the belt buckle 11 and the drive device 12, the cable 10 is guided about a deflection device, which is comprised of an eccentric pawl 16 rotatable about a rotational axis 23. The eccentric pawl 16 for the purpose of deflection in the initial position comprises a deflection end 18 about which the cable 10 is guided, whereby adjacent to the deflection end 18, viewed in the tightening direction, i.e., in the direction of movement of the piston 14 in the cylinder 13, an eccentric arc 19 is provided which has an outer toothing 20. With such a geometric design of the eccentric pawl 16, it is ensured that upon return movement of the cable 10 counter to the tightening direction the force acting via the deflection end 18 has a sufficient leverage due to the embodiment of the eccentric pawl 16 as a two-arm elongate lever in order to pivot the eccentric pawl 16 in the clockwise direction so that initially the first tooth 21 of the eccentric arc 19 engages the cable 10. Due to the increasing radius of the eccentric arc 19, with further pivoting of the eccentric pawl 16, the cable 10 is increasingly clamped between the counter plate 17 and the outer toothing 20 of the eccentric pawl 16. Meyer et al. does <u>not</u> disclose a rotatable cam cooperating with the cable to rotate in a

counterclockwise direction to generate a clamping force toward the seat restraint to clamp the cable between the cam and a clamping surface to prevent reverse travel of the cable after tightening the seat restraint.

In contradistinction, claim 1, as amended, clarifies the invention claimed as a seat restraint tensioner for a seat restraint system in a vehicle including a cable having a first end and a second end. The first end is operatively connected to a seat restraint of the seat restraint system. The seat restraint tensioner also includes a movable mechanism connected to the second end of the cable to apply a force for tightening the seat restraint when activated. The seat restraint tensioner further includes a rotatable cam cooperating with the cable to rotate in a counterclockwise direction to generate a clamping force toward the seat restraint to clamp the cable between the cam and a clamping surface to prevent reverse travel of the cable after tightening the seat restraint. Claims 16 and 28 have been amended similar to claim 1 and include other features of the present invention.

A rejection grounded on anticipation under 35 U.S.C. § 102 is proper only where the subject matter claimed is identically disclosed or described in a reference. In other words, anticipation requires the presence of a single prior art reference which discloses each and every element of the claimed invention arranged as in the claim. In re Arkley, 455 F.2d 586, 172 U.S.P.Q. 524 (C.C.P.A. 1972); Kalman v. Kimberly-Clark Corp., 713 F.2d 760, 218 U.S.P.Q. 781 (Fed. Cir. 1983); Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co., 730 F.2d 1452, 221 U.S.P.Q. 481 (Fed. Cir. 1984).

Meyer et al. '664 does not disclose or anticipate the claimed invention of claims 1, 16, and 28. Specifically, Meyer et al. '664 merely discloses a tightening device for use with safety belts with eccentric locking in which a cable is guided about a deflection device which is

comprised of an eccentric pawl rotatable about a rotational axis and upon return movement of the cable counter to the tightening direction, the force acting via the deflection end has a sufficient leverage to pivot the eccentric pawl in the clockwise direction and clamp the cable between the counter plate and the outer toothing. Meyer et al. '664 lacks a rotatable cam cooperating with the cable to rotate in a counterclockwise direction to generate a clamping force toward the seat restraint to clamp the cable between the cam and a clamping surface to prevent reverse travel of the cable after tightening the seat restraint. In Meyer et al. '664, upon return movement of the cable 10 counter to the tightening direction, the force acting via the deflection end 18 has a sufficient leverage to pivot the eccentric pawl 16 in the clockwise direction so that initially the first tooth 21 of the eccentric arc 19 engages the cable 10. Meyer et al. '664 fails to disclose the combination of a seat restraint tensioner including a rotatable cam cooperating with a cable to rotate in a counterclockwise direction to generate a clamping force toward a seat restraint to clamp the cable between the cam and a clamping surface to prevent reverse travel of the cable after tightening the seat restraint as claimed by Applicants. Therefore, it is respectfully submitted that claims 1, 16, and 28 and the claims dependent therefrom are allowable over the rejection under 35 U.S.C. § 102(b).

Claims 3, 4, and 20 were rejected under 35 U.S.C. § 102(b) as being anticipated by Meyer et al. '664. Applicants respectfully traverse this rejection for the same reasons given above to claims 1 and 16.

Claims 5 through 7 and 21 were rejected under 35 U.S.C. § 103 as being unpatentable over Meyer et al. '664 in view of Wier (U.S. Patent No. 6,039,352). Applicants respectfully traverse this rejection for the same reasons given above to claims 1 and 16.

Claims 8 and 22 were rejected under 35 U.S.C. § 103 as being unpatentable over Meyer et al. '664 in view of Wier '352 and further in view of Isaji et al. (U.S. Patent No. 5,707,080). Applicants respectfully traverse this rejection for the same reasons given above to claims 1 and 16.

Claims 10 through 12, 15, and 24 were rejected under 35 U.S.C. § 103 as being unpatentable over Meyer et al. '664 in view of Greiner (U.S. Patent No. 5,495,790). Applicants respectfully traverse this rejection for the same reasons given above to claims 1 and 16.

Claims 13, 14, and 17 were rejected under 35 U.S.C. § 103 as being unpatentable over Meyer et al. '664 in view of Downie et al. (U.S. Patent No. 6,213,511). Applicants respectfully traverse this rejection for the same reasons given above to claims 1 and 16.

Claim 18 was rejected under 35 U.S.C. § 103 as being unpatentable over Meyer et al. '664 in view of Downie et al. '511 and further in view of Greiner '790. Applicants respectfully traverse this rejection for the same reasons given above to claim 16.

New claim 29 has been added to specifically claim the embodiment of Figures 4 and 5. New claim 29 claims the seat restraint tensioner including the frame having a clamping surface at an angle greater than zero relative to a longitudinal axis of the housing for the piston. In Meyer et al. '664, the clamping surface on the counter plate 17 is parallel to the longitudinal axis of the housing or cylinder 13 for the piston 14. Therefore, it is respectfully submitted that claim 29 is allowable over the art of record.

Based on the above, it is respectfully submitted that the claims are in a condition for allowance, which allowance is solicited.

Respectfully submitted,

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APPENDIX A

VERSION OF THE SPECIFICATION AND CLAIMS WITH MARKINGS TO SHOW THE CHANGES

IN THE SPECIFICATION:

Please amend the specification on page 6, line 10 through page 7, line 3, as follows:

The vehicle 14 includes the seat restraint system 12 for restraining an occupant (not shown) in the seat 18. The seat restraint system 12 includes a latch tongue or plate 24 connected to an end of either one of a lap belt 26, shoulder belt 28, or both. In this embodiment, the shoulder belt 28 has another end connected to a seat belt retractor (not shown). The other end of the lap belt 26 is connected by suitable means such as an anchor plate (not shown) to the vehicle structure 20 or the seat 18. The seat restraint system 12 also includes a buckle assembly 30 connected to the seat restraint tensioner 10 to be described. As illustrated, the seat restraint tensioner 10 is mounted to an inboard side of the seat 18 and [extends] the buckle assembly 30 may extend above the seat cushion of the seat 18 and the seat restraint tensioner 10 extends towards a front of the vehicle 14. The latch plate 24 is engageable and disengageable with the buckle assembly 30 as is known in the art. It should be appreciated that, except for the seat restraint tensioner 10, the seat restraint system 12 and vehicle 14 are conventional and known in the art.

Please amend the specification on page 10, lines 6 through 23, as follows:

The seat restraint tensioner 10 includes a rotatable cam 66 is disposed in the channel 39 of the frame 34 between the side walls 38. The cam 66 is rotatably mounted to a stud or shaft 68 extending between the side walls 38 and connected thereto. The stud 68 acts as a pivot point for the cam 66. The cam 66 is generally elliptical in shape and has a radius portion 66a on one side and an eccentric portion 66b on the opposite side of the stud 68. The cam 66 has a cut-out or recess 69 therein to cooperate with the stops 38a to limit rotation of the cam 66. The cam 66 has at least one, preferably a plurality of scallops 70 along the eccentric portion 66b thereof for a function to be described. The cam 66 is made of a metal material such as steel. It should be appreciated that the cam 66 pivots on the stud 68. It should also be appreciated that the cam 66 has a lever arm and clamping surface [90] on the same side as the pivot for the cam 66.

Please amend the specification on page 16, lines 6 through 21, as follows:

The seat restraint tensioner 110 includes a rotatable cam 166 is disposed in the channel 139 of the frame 134 between the side walls 138. The cam 166 is rotatably mounted to a stud or shaft 168 extending between the side walls 138 and connected thereto. The stud 168 acts as a pivot point for the cam 166. The cam 166 is generally elliptical in shape and has a radius portion 166a on one side and an eccentric portion 166b on the opposite side of the stud 168. The cam 166 has at least one, preferably a plurality of scallops 170 along the eccentric portion 166b thereof for a function to be described. The cam 166 is made of a metal material such as steel. It should be appreciated that the cam 166 pivots on the stud 168. It should be appreciated that the

cam 166 has a lever arm and clamping surface [190] on the same side of the pivot for the cam 166.

Please amend the specification on page 18, line 21 through page 19, line 21 as follows:

The seat restraint tensioner 110 pulls the buckle assembly 30 down approximately eighty millimeters (80mm) to approximately one hundred millimeters (100mm). After firing, the seat restraint tensioner 110 maintains position and locks the cable 184. The cam 166 pivots on the stud 168 and the cable 184, that extends along one side of the eccentric portion 166b of the cam 166, when pulled in a vertical direction will generate a torque about the stud 168. The torque about the stud 168 rotates the cam 166 toward the buckle assembly 30 and into the cable 184 and compresses the cable 184 between the cam 166 and a clamping surface 190 of the frame 134 as illustrated in Figure 5. The cam 166 generates a clamping force on the cable 184 and prevents reverse travel of the cable 184 and therefore the buckle assembly 30. The cable locking described above results in a high tensile load path directly from the buckle assembly 30 through the cable 184 and into the cam 166 and the mounting stud 168. It should be appreciated that the scallops 170 engage the cable 184. It should also be appreciated that torque and clamping force are on the same side of the stud 168 and the torque lever arm has a predetermined ratio such as 2:1 <u>of torque lever length to clamping lever length</u>. It should further be appreciated that the seat restraint tensioner 110 may be used for a frontal impact condition for pre-loading before the occupant moves to load the buckle assembly 30 and may be used for a rollover condition having a much faster stroke rate.

IN THE CLAIMS:

Please amend claims 1, 16, and 28 as follows:

1. (AMENDED) A seat restraint tensioner for a seat restraint system in a vehicle comprising:

a cable having a first end and a second end, said first end being operatively connected to a seat restraint of the seat restraint system;

a movable mechanism connected to said second end of said cable to apply a force for tightening the seat restraint when activated; and

a rotatable cam cooperating with said cable to rotate in a counterclockwise direction to generate a clamping force toward the seat restraint to clamp said cable between said cam and a clamping surface to prevent reverse travel of said cable after tightening the seat restraint.

16. (AMENDED) A seat restraint tensioner for a seat restraint system in a vehicle comprising:

a frame for operative connection to vehicle structure;

a housing connected to said frame;

a movable piston disposed in said housing;

a cable fitting for connection to a buckle assembly of the seat restraint system above said frame;

a cable having one end operatively connected to said cable fitting and another end operatively connected to said piston;

a gas generator operatively connected to said housing for expelling a gas to move said piston to apply a force for pulling-down the buckle assembly; and

a rotatable cam pivotally connected to said frame and having a lever arm and clamping surface on the same side of a pivot for said cam, said cam cooperating with said cable to rotate in a counterclockwise direction to generate a clamping force on said cable toward the buckle assembly to prevent reverse travel of said cable after pulling-down the buckle assembly.

28. (AMENDED) A seat restraint system for a vehicle comprising:

a buckle assembly;

a frame for connection to vehicle structure of the vehicle, said frame having a clamping surface;

a housing connected to said frame;

a movable piston disposed in said housing;

a cable fitting connected to said buckle assembly;

a cable having one end operatively connected to said cable fitting and another end operatively connected to said piston;

a gas generator operatively connected to said housing for expelling a gas to move said piston to apply a force for pulling-down said buckle assembly; and

a rotatable cam pivotally connected to said frame and cooperating with said cable to rotate in a counterclockwise direction to generate a clamping force toward said buckle

assembly to clamp said cable between said cam and said clamping surface to prevent reverse travel of said cable after pulling-down said buckle assembly.